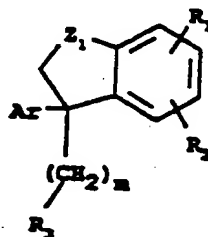


CLAIMS

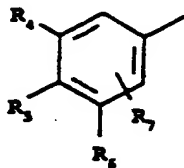
1. Heterocyclic biaryl compounds, characterized in that they correspond to the general formula (I) below:



(I)

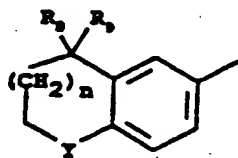
5 in which:

- Ar represents
- . either the radical of formula (II) below:



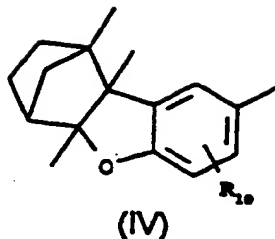
(II)

- . or the radical of formula (III) below:



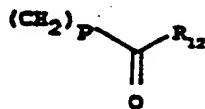
(III)

- . or the radical of formula (IV) below:



-  $R_1$  represents an atom or a radical chosen from

- (i) the  $-CH_3$  radical,
- (ii) the radical  $-(CH_2)_p-O-R_{11}$ ,
- (iii) a radical  $-OR_{11}$ ,
- (iv) a radical



- (v) a radical  $-S(O)_tR_{13}$ ,

$R_{11}$ ,  $R_{12}$ ,  $R_{13}$ ,  $p$  and  $t$  having the meanings given below,

-  $R_2$  represents a hydrogen atom, a halogen atom, an alkyl radical or the radical  $-OR_{11}$ ,

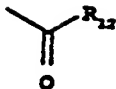
$R_{11}$  having the meaning given below,

-  $R_3$  represents an atom or a radical chosen from:

- (i) an atom or a radical chosen from a hydrogen atom, an alkyl radical, an alkenyl radical, an alkynyl radical, an aryl radical, a monohydroxyalkyl or polyhydroxyalkyl radical, a polyether radical, a cyano radical or a radical  $-O-R_{11}$ ,

$R_{11}$  having the meaning given below,

- (ii) a radical



$\text{R}_{12}$  having the meaning given below,

(iii) a radical



$\text{r}$  and  $\text{r}'$  having the meaning given below,

-  $\text{Z}_1$  represents O, S or  $\text{NR}'$ ,

5 -  $m$  is an integer between 0 and 10,

it being understood in all of the preceding text that:

$\text{R}_4$ ,  $\text{R}_5$ ,  $\text{R}_6$  and  $\text{R}_7$ , which may be identical or different, are chosen from:

(i) a hydrogen atom,

10 (ii) an alkyl radical having at least 4 carbon atoms, among which the carbon attached to the phenyl radical is substituted with at least two carbon atoms,

(iii) a cycloalkyl radical,

15 (iv) a radical  $-(\text{Z}_2)_n-(\text{CH}_2)_q-\text{CO}-\text{R}_{12}$ ,

(v) a radical  $-\text{Z}_3-\text{R}_{11}$ ,

with at least one of the radicals  $\text{R}_4$ ,  $\text{R}_5$ ,  $\text{R}_6$  and  $\text{R}_7$  being an alkyl radical as defined in (ii) or a cycloalkyl radical (iii),

20  $\text{Z}_2$ ,  $\text{Z}_3$ ,  $\text{R}_{11}$ ,  $\text{R}_{12}$ ,  $n$  and  $q$  having the meanings given below,

$R_8$  and  $R_9$  represent lower alkyl radicals,

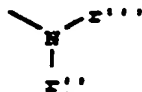
$R_{10}$  represents a lower alkyl radical, a radical  $-OR_{11}$  or a polyether radical,

$R_{11}$ , which may be identical or different, represents a  
 5 hydrogen atom, a lower alkyl radical, an aryl radical, an aralkyl radical, a monohydroxyalkyl or polyhydroxyalkyl radical, a polyether radical or a lower acyl radical,

$R_{12}$ , which may be identical or different, represents:

10

- (a) a hydrogen atom, an alkynyl radical, an alkenyl radical, an alkyl radical or a heterocycle,
- (b) a radical



15

$r''$  and  $r'''$  having the meaning given below

- (c) a radical  $-OR_{13}$

$R_{13}$ , which may be identical or different, represents a  
 hydrogen atom, an alkyl radical, a monohydroxyalkyl or polyhydroxyalkyl radical, an optionally substituted  
 20 aryl or aralkyl radical or a sugar, amino acid or peptide residue,

R', which may be identical or different, represents a protecting group for amine functions, a hydrogen atom, a lower alkyl radical, a polyether radical or an optionally substituted aryl radical or an amino acid, peptide or sugar residue,

r and r', which may be identical or different, represent protecting groups for amine functions, a hydrogen atom, a lower alkyl radical, a polyether radical, an optionally substituted aryl radical or an amino acid, peptide or sugar residue, or alternatively, taken together, form a heterocycle,

r'' and r''', which may be identical or different, represent a hydrogen atom, a lower alkyl radical, a polyether radical, an optionally substituted aryl radical or an amino acid, peptide or sugar residue, or alternatively, taken together, form a heterocycle,

Y represents  $C(R_9)_2$ , O, S,  $Nr'$ , CHOH, CO, SO or  $SO_2$ ,

$Z_2$  represents O, S or  $NR'$ ,

$Z_3$  represents O or S,

n, which may be identical or different, is equal to 0 or 1; p, which may be identical or different, is equal to 0, 1, 2 or 3; t is equal to 0, 1, 2 or 3; q is an

integer between 0 and 10,  
as well as the salts thereof and the optical and  
geometrical isomers thereof.

2. Compounds according to Claim 1,  
5 characterized in that they are in the form of salts of  
an alkali metal or alkaline-earth metal, of zinc, of an  
organic amine or of an inorganic or organic acid.

3. Compounds according to either of Claims  
1 and 2, characterized in that the alkyl radicals are  
10 chosen from the group consisting of the methyl, ethyl,  
isopropyl, butyl, tert-butyl, hexyl, nonyl and dodecyl  
radicals.

4. Compounds according to one of the  
preceding claims, characterized in that  
15 polyhydroxyalkyl radicals are chosen from the group  
consisting of the 2,3-dihydroxypropyl, 2,3,4-  
trihydroxybutyl and 2,3,4,5-tetrahydroxypentyl radicals  
or the pentaerythritol residue.

5. Compounds according to one of the  
20 preceding claims, characterized in that the aryl  
radical is a phenyl radical optionally substituted with  
at least one halogen atom, a hydroxyl radical, an alkyl  
radical, a nitro function, a methoxy group or an  
optionally substituted amine function.

25 6. Compounds according to one of the  
preceding claims, characterized in that the aralkyl  
radicals are chosen from the group consisting of the  
benzyl and phenethyl radicals, optionally substituted

with at least one halogen atom, a hydroxyl, a nitro function or a methoxy group.

7. Compounds according to one of the preceding claims, characterized in that the alkenyl radicals are chosen from the group consisting of radicals containing from 1 to 5 carbon atoms and having one or more ethylenical unsaturations, and in particular the allyl radical.

8. Compounds according to one of the preceding claims, characterized in that the sugar residues are chosen from the group consisting of glucose, galactose, mannose and glucuronic acid residues.

9. Compounds according to any one of the preceding claims, characterized in that the amino acid residues are chosen from the group consisting of residues derived from lysine, from glycine or from aspartic acid.

10. Compounds according to any one of the preceding claims, characterized in that the peptide residues are chosen from the group consisting of dipeptide and tripeptide residues.

11. Compounds according to any one of the preceding claims, characterized in that the heterocyclic radicals are chosen from the group consisting of piperidino, morpholino, pyrrolidino and piperazino radicals, optionally substituted in position 4 with a C<sub>1</sub>-C<sub>6</sub> alkyl or a polyhydroxyalkyl radical.

12. Compounds according to any one of the preceding claims, characterized in that the halogen atoms are chosen from the group consisting of fluorine and chlorine.

5 13. Compounds according to any one of the preceding claims, characterized in that the aminoalkyl radical is chosen from the aminomethyl, 3-aminopropyl and 6-aminohexyl radicals.

10 14. Compounds according to any one of the preceding claims, characterized in that the alkynyl radical has from 2 to 6 carbon atoms.

15 15. Compounds according to any one of the preceding claims, characterized in that the cycloaliphatic radicals of C3 to C6 carbon atoms are chosen from the cyclopropyl radical and the cyclohexyl radical.

20 16. Compounds according to any one of the preceding claims, characterized in that the lower acyl radicals are chosen from the acetyl, propionyl and pivaloyl radicals.

17. Compounds according to any one of the preceding claims, characterized in that the cycloalkyl radicals are chosen from the adamantyl and 1-methyl-cyclohexyl radicals.

25 18. Compounds according to any one of the preceding claims, characterized in that the polyether radicals are chosen from the methoxymethyl ether, methoxyethoxymethyl ether and methylthiomethyl ether



radicals.

19. Compounds according to Claim 1, characterized in that they are taken, alone or as mixtures, from the group consisting of:

- 5                   - 3-[3-(1-adamantyl)-4-methoxyphenyl]-3-methyl-2H-1-benzofuran-6-carboxylic acid,  
                  - methyl 3-[3-(1-adamantyl)-4-methoxyphenyl]-3-methyl-2H-1-benzofuran-6-carboxylate,  
                  - 3-[3-(1-adamantyl)-4-methoxyphenyl]-3-methyl-2H-1-benzofuran-5-carboxylic acid,  
10                  - methyl 3-[3-(1-adamantyl)-4-methoxyphenyl]-3-methyl-2H-1-benzofuran-5-carboxylate,  
                  - 3-methyl-3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-2H-1-benzofuran-6-carboxylic  
15                  acid,  
                  - methyl 3-methyl-3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-2H-1-benzofuran-6-carboxylate,  
                  - 3-(propen-2-yl)-3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-2H-1-benzofuran-6-carboxylic acid,  
20                  - methyl 3-(propen-2-yl)-3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-2H-1-benzofuran-6-carboxylate,  
                  - 3-(propen-2-yl)-3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-2H-1-benzofuran-5-carboxylic acid,  
25                  - methyl 3-(propen-2-yl)-3-(5,6,7,8-

tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-2H-1-benzofuran-5-carboxylate,

5       - 3-methyl-3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-2H-1-benzofuran-5-carboxylic acid,

      - methyl 3-methyl-3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-2H-1-benzofuran-5-carboxylate,

10       - 3-methyl-3-(1,2,3,4-tetrahydro-1,4a,9b-trimethyl-1,4-methanodibenzofur-8-yl)-2H-1-benzofuran-6-carboxylic acid,

      - methyl 3-methyl-3-(1,2,3,4-tetrahydro-1,4a,9b-trimethyl-1,4-methanodibenzofur-8-yl)-2H-1-benzofuran-6-carboxylate,

15       - 3-methyl-3-(1,2,3,4-tetrahydro-1,4a,9b-trimethyl-1,4-methanodibenzofur-8-yl)-2H-1-benzofuran-5-carboxylic acid,

20       - methyl 3-methyl-3-(1,2,3,4-tetrahydro-1,4a,9b-trimethyl-1,4-methanodibenzofur-8-yl)-2H-1-benzofuran-5-carboxylate,

      - 3-allyl-3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-2H-1-benzofuran-6-carboxylic acid,

25       - methyl 3-allyl-3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-2H-1-benzofuran-6-carboxylate,

      - [3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-3-methyl-2H-1-benzofur-5-oyl]morpholine,

- N-4-hydroxyphenyl-3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-3-methyl-2H-1-benzofuran-5-carboxamide,

5 - N-butyl-3-methyl-3-(5,5,8,8-tetramethyl-5,6,7,8-tetrahydro-2-naphthyl)-2H-1-benzofuran-5-carboxamide,

- methyl 3-[4-(1-adamantyl)-3-methoxyphenyl-3-methyl-2H-1-benzofuran]-6-carboxylate,

10 - 3-[4-(1-adamantyl)-3-methoxyphenyl-3-methyl-2H-1-benzofuran]-6-carboxylic acid,

- methyl 3-(3-methyl-5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-3-methyl-2H-1-benzofuran-6-carboxylate,

15 - 3-(3-methyl-5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-3-methyl-2H-1-benzofuran-6-carboxylic acid,

- methyl 3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-3-(3,5-di-tert-butyl-4-hydroxybenzyl)-2H-1-benzofuran-6-carboxylate,

20 - 3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-3-(3,5-di-tert-butyl-4-hydroxybenzyl)-2H-1-benzofuran-6-carboxylic acid,

- 3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-3-methyl-2H-1-benzofuran-5-methanol,

25 - 3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-3-methyl-2H-1-benzofuran-5-carbaldehyde,

- methyl (-)-3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-3-methyl-2H-1-benzofuran-5-

carboxylate,

- methyl (+)-3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-3-methyl-2H-1-benzofuran-5-carboxylate,

5 - methyl (-)-3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-3-methyl-2H-1-benzofuran-6-carboxylate,

10 - methyl (+)-3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-3-methyl-2H-1-benzofuran-6-carboxylate,

- methyl 3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-3-(2-hexenyl)-2H-1-benzofuran-6-carboxylate,

15 - 3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-3-(2-hexenyl)-2H-1-benzofuran-6-carboxylic acid,

- 3-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthyl)-3-hexyl-2H-1-benzofuran-6-carboxylic acid,

20 - methyl 3-methoxycarbonylmethyl-3-(5,5,8,8-tetramethyl-5,6,7,8-tetrahydro-2-naphthyl)-2H-1-benzofuran-6-carboxylate,

- 3-carboxymethyl-3-(5,5,8,8-tetramethyl-5,6,7,8-tetrahydro-2-naphthyl)-2H-1-benzofuran-6-carboxylic acid.

25 20. Compounds according to Claim 1, characterized in that they have at least one of the following characteristics:

-  $R_1$  is a radical  $-(CH_2)_p-CO-O-R_{13}$

- $R_2$  is a hydrogen
- $R_3$  is a hydrogen or an alkenyl radical
- $R_5$  or  $R_6$  is a radical  $-OR_{11}$
- $R_7$  is a cycloalkyl radical
- $Z_1$  is an oxygen atom
- $Y$  is a radical  $C(R_9)_2$
- $m$  is equal to 1.

21. Compounds according to any one of the preceding claims, for use as medication.

22. Compounds according to Claim 21, for use as medicinal products intended for the treatment of dermatological complaints associated with a keratinization disorder which has a bearing on differentiation and on proliferation, in particular for treating common acnes, comedones, polymorphonuclear leukocytes, acne rosacea, nodulocystic acne, acne conglobata, senile acne, secondary acnes such as solar acne, medication-induced acne or occupational acne; for treating other types of keratinization disorders, in particular ichthyosis, ichthyosiform states, Darier's disease, palmoplantar keratoderma, leucoplasias and leucoplasiform states, cutaneous or mucous (buccal) lichen; for treating other dermatological complaints associated with a keratinization disorder having an inflammatory and/or immunoallergic component and, in particular, all forms of psoriasis, whether it is cutaneous, mucous or unguinal psoriasis, and even psoriatic rheumatism, or alternatively cutaneous atopy,

such as eczema, or respiratory atopy or alternatively gingival hypertrophy; the compounds may also be used in certain inflammatory complaints which do not exhibit a disorder of keratinization; for treating all dermal or

5 epidermal proliferations, whether benign or malignant and whether or not they are of viral origin, such as common warts, flat warts and verruciform epidermodysplasia, oral or florid papillomatosis and proliferations which may be induced by ultraviolet

10 radiation, in particular in the case of basocellular and spinocellular epithelioma; for treating other dermatological disorders such as bullosis and collagen diseases; for treating certain ophthalmological disorders, in particular corneopathies; for repairing

15 or combating both light-induced and chronological ageing of the skin or for reducing actinic keratosis and pigmentations, or any pathology associated with chronological or actinic ageing; for preventing or curing the stigmata of epidermal and/or dermal atrophy

20 induced by local or systemic corticosteroids, or any other form of skin atrophy, for preventing or treating cicatrization disorders or for preventing or repairing vibicies; for promoting cicatrization, for combating disorders of sebaceous functioning such as the

25 hyperseborrhoea of acne or simple seborrhoea; for treating or preventing cancerous or precancerous states, more particularly promyelocytic leukaemias; for treating inflammatory complaints such as arthritis, for

treating any complaint of viral origin on the skin or generally; for preventing or treating alopecia; for treating dermatological complaints with an immune component; for treating complaints of the

- 5 cardiovascular system such as arteriosclerosis or hypertension, as well as insulin-independent diabetes, and for treating skin disorders due to exposure to UV radiation.

23. Pharmaceutical composition,  
10 characterized in that it comprises, in a pharmaceutically acceptable support, at least one of the compounds as defined in any one of Claims 1 to 20.

24. Composition according to Claim 23,  
15 characterized in that the concentration of compound(s) according to one of Claims 1 to 16 is between 0.001% and 5% by weight relative to the composition as a whole.

25. Cosmetic composition, characterized in  
20 that it comprises, in a cosmetically acceptable support, at least one of the compounds as defined in any one of Claims 1 to 20.

26. Composition according to Claim 25,  
characterized in that the concentration of compound(s) according to one of Claims 1 to 20 is between 0.001%  
25 and 3% by weight relative to the composition as a whole.

27. Use of a cosmetic composition as defined in either of Claims 25 and 26, for body or hair hygiene.

add A3  
add B4  
add C  
add D  
add E  
add F  
add G